

Abstract of the Disclosure

A porous glass composite material comprising at least one alkoxodisilane (precursor) having the general formula $(\text{OR}^1)_3\text{Si-spacer-Si}(\text{OR}^2)_3$, wherein R^1 and R^2 are the same or different and may be hydrogen; substituted and unsubstituted, branched and unbranched

5 C_{1-20} -Alkyls; substituted and unsubstituted, branched and unbranched C_{1-20} -alkenyls; substituted and unsubstituted, branched and unbranched C_{1-20} -alkynyls; substituted, unsubstituted, and multiple ring aryl groups; or combinations thereof; and water. Devices including the glass composite materials are also described. Examples include

10 chromatographic and other separation media, drug delivery vehicles, and electric and mechanical actuators.